We claim:

1. An isolated nucleic acid sequence having a sequence encoding a modified G protein-coupled receptor (GPCR), wherein the modification comprises a mutation in an intracellular domain of the G protein-coupled receptor and results in an improved functional response in a cell-based assay, and wherein the modified G protein-coupled receptor is selected from the group consisting of a muscarinic acetylcholine receptor, a cholecystokinin CCKB receptor, a somatostatin receptor, an alpha 2A adrenergic receptor, and a serotonin receptor.

2. The nucleic acid sequence according to claim 1, wherein the modification promotes agonist stimulated growth, and wherein the agonist is a G protein-coupled receptor agonist.

3. The nucleic acid according to claim 2, wherein the modification results in improved coupling between the receptor and a heterotrimeric G protein or failure of the receptor to interact with cell desensitization or sequestration-internalization machinery or proper plasma membrane localization.

4. The nucleic acid according to claim 1, wherein the mutation is a deletion.

5. The nucleic acid according to claim 4, wherein the deletion is a point mutation.

6. The nucleic acid according to claim 4, wherein the deletion is in the third intracellular loop of the G protein-coupled receptor.

7. The nucleic acid according to claim 6, wherein the G protein-coupled receptor is selected from the group consisting of a muscarinic acetylcholine receptor, a cholecystokinin CCKB receptor, and an alpha 2A adrenergic receptor.

8. The nucleic acid sequence according to claim 1, wherein the serotonin receptor is Ce 5HTR.

9. The nucleic acid sequence according to claim 1, wherein the muscarinic acetylcholine receptor is a rat M3 muscarinic acetylcholine receptor or a *D. melanogaster* muscarinic acetylcholine receptor.

10. The nucleic acid sequence according to claim 1, wherein the cholecystokinin CCKB receptor is a rat cholecystokinin CCKB receptor.

11. The nucleic acid sequence according to claim 1, wherein the somatostatin receptor is a rat somatostatin receptor subtype 3.

12. The nucleic acid sequence according to claim 1, wherein the alpha 2A adrenergic receptor is a human alpha 2A adrenergic receptor.

13. A modified G protein-coupled receptor encoded by the nucleic acid sequence according to claim 1.

14. The G protein-coupled receptor according to claim 13, wherein the deleted third intracellular loop is 44 amino acids in length.

15. A mutant G protein-coupled receptor encoded by the nucleic acid sequence according to claim 10, wherein a sequence Gln-Trp-Val-Gln-Ala-Pro-Ala-Cys (SEQ ID NO:15) is deleted from the third intracellular loop of the mutant G protein-coupled receptor.

16. An isolated nucleic acid having a sequence encoding a chimeric G protein-coupled receptor, wherein the chimeric G protein-coupled receptor comprises a modified intracellular domain of a G protein-coupled receptor that confers an improved functional response to the chimeric G protein-coupled receptor in a cell-based assay.

17. The nucleic acid according to claim 16, wherein the modified intracellular domain is the third intracellular loop.

18. A vector comprising the nucleic acid sequence according to claim 1 or 16.

19. A host cell transformed with a vector according to claim 10.

20. The host cell according to claim 19, further comprising a plasmid comprising an inducible reporter gene.

21. The host cell according to claim 19, wherein the host cell is a eukaryotic cell.

22. The host cell according to claim 21, wherein the eukaryotic cell is a yeast cell.

23. The host cell according to claim 22, further comprising a plasmid comprising an inducible reporter gene.

24. The host cell according to claim 23, wherein the reporter gene is a green fluorescent protein.

25. The host cell according to claim 24, wherein the green fluorescent protein is operably linked to a *FUS2* promoter.

26. A method for screening compounds capable of binding to G protein-coupled receptors comprising:

(a) subjecting the host cell according to claim 19 to a test compound; and

(b) measuring the effect of the test compound on cell growth.

27. A host cell comprising a heterologous G protein-coupled receptor, wherein the G protein-coupled receptor has a modification that results in an improved functional response of the G protein-coupled receptor in a cell-based assay.

28. The host cell according to claim 27, wherein the modification promotes agonist stimulated growth, and wherein the agonist is a G protein-coupled receptor agonist

29. The host cell according to claim 28, wherein the modification results in improved coupling between the heterologous G protein-coupled receptor and a heterotrimeric G protein or failure of the heterologous G protein-coupled receptor to interact with cell desensitization or sequestration-internalization machinery or proper plasma membrane localization.

30. The host cell according to claim 27, wherein the host cell is a eukaryotic cell.

31. The host cell according to claim 30, wherein the heterologous G protein-coupled receptor is modified at an intracellular domain.

32. The host cell according to claim 31, wherein the intracellular domain is the third intracellular domain.

33. The host cell according to claim 27, wherein the heterologous G protein-coupled receptor is modified at the carboxy terminal tail of the G protein-coupled receptor.

34. The host cell according to claim 31 or 33, wherein the host cell is yeast.

35. The host cell according to claim 34, wherein the modified G protein-coupled receptor is a neurotensin receptor.

36. The host cell according to claim 35, wherein the neurotensin receptor is a rat neurotensin NT1 receptor.

37. A method for screening compounds capable of binding to G protein-coupled receptors comprising:

(a) subjecting the host cell according to claim 27 to a test compound; and

(b) measuring the effect of the test compound on yeast cell growth.